

Designing the Digital Government of the 21st Century: A Multidisciplinary Workshop

The National Science Foundation's program on Digital Government supports experimentation and research to improve the information-based services that government provides to citizens or uses internally to carry out its mission. On October 5-6, 1998, 67 researchers and government practitioners convened in a workshop funded by this NSF program to discuss ways that government practitioners and academic researchers can collaborate to produce innovative and effective information-based government services. Held in Arlington, VA, and led by the Center for Technology in Government at the University at Albany/SUNY, the workshop was designed to identify and develop research themes and projects that can further these goals.

This workshop was one in a series funded by NSF to promote interaction between researchers and government practitioners. The October 1998 workshop focused particularly on the environment in which government information services are developed. It recognized that government programs and service delivery mechanisms are developed in a complex multi-layered Federal-state-local system in which many organizations play significant and different roles. It also emphasized that development efforts must deal with interactions among the political, organizational, technological, cultural, and human factors that shape the implementation environment.

The workshop had several goals:

- Propose criteria for investing in research activities that will have the greatest positive impact on government programs, services, and customers.
- Identify issues, opportunities, and themes for cross-disciplinary research to foster the creation, adoption, and diffusion of innovative and effective government IT applications.
- Recommend ways to build mutually beneficial links between researchers and the information services and government management communities.
- Develop ideas for specific research projects that would contribute to more effective use of advanced technologies in government.
- Recommend criteria for evaluating the effectiveness of the research program.

To help focus attention on research that would have practical implications, the workshop participants were asked to take a "program-centric" view of the information content and processing needs of government operation. By paying special attention to the needs of government program managers, workshop presentations and discussions were designed to lead to research ideas that have the potential to be of pragmatic use in government.

Preparation

Two activities helped set the stage for the workshop. During the summer, the organizing committee issued a call for papers addressing the themes of the workshop. A variety of academic researchers, private consultants, and government practitioners responded; from the submissions, 18 papers from a variety of perspectives were selected to serve as a backdrop for the workshop. These were made available on the workshop Web site for the participants to examine before the workshop. Several authors were invited to attend or make presentations at the workshop. In a second activity, the workshop organizers conducted a review of award-winning government applications to identify exemplary uses of IT in government that could serve to underscore the "program-centric" theme of the workshop. From this group of several dozen programs, a total of six were selected for presentation at the workshop. These served as examples of the range and depth of uses of IT at all three levels of government.

The workshop organizing committee then invited additional participants to represent a broad mixture of stakeholders: government officials and managers from Federal, state, and local levels; researchers from a variety of fields including social, information, computer, and computational science; and representatives from the private sector, nonprofit organizations, and the international government IT community. Altogether, a total of 67 people participated in the workshop.

Presentations

The workshop began with small group discussions designed to elicit participants' impressions of government

information systems as citizens, public managers, and researchers. Some common themes emerged from this discussion, including a desire to take advantage of technologies that provide one-stop- shopping, the lack of funding for government IT initiatives, resistance to cultural, organizational, and technical change among government organizations, and the general risk-averse nature of government. These discussions also pointed out the extensive involvement of non-governmental organizations in the delivery of public services and the difficulty of designing and delivering services that are of uniform quality in the face of a wide variety of local conditions.

Following this discussion, the workshop continued with presentations of government applications and academic research capabilities. The six government applications that were highlighted represented all levels of government, addressed a variety of government policy and management objectives, and had different levels of scope and complexity. Some of these programs use IT to help achieve single program objectives: the IRS e-file program, a Texas initiative to detect fraud and abuse in the Medicaid program, and a computerized statistical and monitoring program of the New York City Police Department. A second set of presentations focused on programs that cross the boundaries of organizations or levels of government: the Federal Geographic Data Committee and its National Spatial Data Infrastructure initiative, the Washington State Public Health Network, and the public community network of Santa Monica, CA. The research presentations covered the state-of-the art in four relevant areas: overarching issues of information and society, applied research commissioned by government agencies, trends in computer and information science research (including a summary of the initial workshop funded by the Digital Government initiative in May 1997), and trends in social science research that pertain to government use of IT.

Workshop participants also heard from Thomas Kalil, Director of Science and Technology for the National Economic Council, on Administration goals and initiatives relevant to the Digital Government Program. NSF Digital Government Program Officer Larry Brandt reviewed the goals of the program and outlined the nature of the proposals received in response to the first round of project solicitation in September 1998.

Discussions

The participants divided into five homogeneous groups to brainstorm about approaches to linking government practice and academic research. The three government groups (comprising Federal, state, and local practitioners, respectively) were asked to identify government's current and future administrative and service delivery needs that advanced IT can help meet. The two research groups (in information technology and social sciences) were asked to identify research topics and approaches that can contribute to more effective use of advanced technologies in government. From these discussions, eight key needs and opportunities emerged:

- Interoperable systems that are trusted and secure.
- Citizen participation in democratic processes.
- Electronic public service models and transactions.
- New models for public-private partnerships and other networked organizational forms.
- Intuitive decision support tools for public officials.
- Better methods of IT management.
- Archiving and electronic records management.
- Matching research resources to government needs.

In subsequent discussions among the participants, a number of issues emerged that need to be addressed to make research collaborations more effective.

- Although academic research can have a significant influence on government practices, the government and research communities have very different value systems that need to be taken into account. Government is risk-averse by design, and research is quite the opposite. These competing values need to be addressed through the development of new models for informing and integrating practice and research.
- With the devolution of government services and increased demand for measurable performance at every level, all levels of government need to be accounted for in the research program. Since citizens and businesses most often interact with government at the state and local levels, the needs for intergovernmental support and research are significant. Similarly, the not-for-profit and private sectors are important actors in the delivery of government services and need to be represented in the research topics explored under Digital Government.
- In order to be successful, the research program will need to address the technical, management, policy, and organizational factors that go into successful systems. With this diverse set of research questions and objectives, the research effort should include a variety of research methods, including case studies and

- experimental testbeds.
- Given the wide gap between the academic and government practitioner communities, and the significant opportunity for improved practices through collaboration, new methods are needed for disseminating research into practice and for infusing research with the problems of practice. NSF should consider the development of organizational structures and funding methods to bridge the gap between these two cultures.
- Information technology can play a significant role in transforming not only government services and administration, but also the working of democratic institutions. Projects that focus on the nature and effects of "digital governance" should be included in the Digital Government research program.

Specific research ideas

As part of the workshop activities, participants were asked to develop specific research projects that would help address the needs identified in their discussions. A total of 35 ideas were developed by groups of researchers and practitioners working together. The topics ranged from investigations on the forms of electronic democracy, to the role of XML in the integration of data standards, to the management of public records in the electronic age, to the creation of networked virtual organizations for the delivery of public services. We expect at least some of these preliminary ideas will be among those submitted to the Digital Government Program in future rounds of funding.